

9 one of the predetermined phase modulating elements of the second set is a complex
10 value, the method comprising:

- 11 • a. correlating the received signal with each of the possible first sub-modulation
12 codes for obtaining first correlation results and selecting a correlation result;
13 • b. phase-modulating the selected first correlation result with one of the possible
14 second sub-modulation codes for each possible second sub-modulation code for
15 obtaining second correlation results;
16 • c. selecting the maximum second correlation result from the second correlation
17 results;
18 • d. selecting the symbol of the received signal based on the first and second
19 correlating results.

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crit.*

Replacement claim 2

1 2. A method according to claim 1, wherein for each first correlation result the
2 value of a function of the correlation result is determined and subsequently the first
3 correlation result which provides the maximum value of the function is selected
4 wherein the function is determined by the type of modulation of the second sub-
5 modulation code.

Replacement claim 3

1 3. A method according to claim 2, wherein the function is a function of the real
2 and/or imaginary parts of the first correlation result.

Replacement claim 4

1 4. A method according to claim 1, wherein the number of first modulation results
2 obtained in step a. equals $C_1 * C_2 * \dots * C_{i-1} * C_i * C_{i+1} * \dots * C_n$ wherein C_i is the number of
3 elements of the i^{th} first set of the first sets.

Replacement claim 5

1 5. A method according to claim 1, wherein in step b. in a first substep the
2 selected first correlation result is phase-modulated with each of the possible second
3 sub-modulation codes and in a second substep real values are determined from
4 results obtained in the first substep for obtaining the second correlation results.

Replacement claim 6

- 1 6. A method according to claim 1, wherein the number of second modulation
2 results obtained in step c. equals the number of predetermined phase modulating
3 elements of the second set.

Replacement claim 7

- 1 7. A method according to claim 1, wherein in step c. a predetermined phase
2 modulating element of the second set is selected which provides the selected
3 second correlation result.

Replacement claim 8

- 1 8. A method according to claim 1, wherein in step d. the predetermined phase
2 modulating elements of the first sets are selected which provides the selected first
3 correlation result.

Replacement claim 9

- 1 9. A method according to claim 7, wherein the selected predetermined phase
2 modulating elements of the first sets are combined to obtain the symbol in the
3 received signal.

Replacement claim 10

- 1 10. A method according to claim 1, wherein in step a. a first correlator bank
2 comprising a number of correlators is used, wherein this number of correlators
3 equals the number of first correlation results.

Replacement claim 11

- 1 11. A method according to claim 1, wherein in step b. a second correlator bank
2 comprising a number of correlators is used, wherein this number of correlators
3 equals the number of second correlation results.

Replacement claim 12

- 1 12. An apparatus for the detection of a symbol from a received signal wherein the
2 symbol is a selected symbol out of a predetermined set of symbols, wherein each
3 symbol of the predetermined set is a symbol comprising a sequence of chips

4 wherein each of the chips is PSK-modulated according to a selected modulation
5 code wherein each of the selected modulation codes comprises a first sub-
6 modulation code which is a selection from a plurality of first sets of predetermined
7 phase modulating elements and a second sub-modulation code which is a selection
8 from one second set of predetermined phase modulating elements wherein at least
9 one of said predetermined phase modulating elements of said second set is a
10 complex value, the apparatus comprising correlating means for correlating the
11 received signal with said modulation codes according to a correlation method and
12 means for selecting a modulation code from said modulation codes on the basis of
13 the correlation, wherein the apparatus further comprises:

14 • a first correlator bank for correlating the received signal with each of the
15 possible first sub-modulation codes for obtaining first correlation results;
16 • a first selector for selecting a first correlation result from the first correlation
17 results;
18 • a second correlator bank for phase-modulating the first correlation result with
19 one of said possible second sub-modulation codes for each possible second sub-
20 modulation code for obtaining second correlation results;
21 • a second selector for selecting the maximum second correlation result from
22 the second correlation results;
23 • a control-unit that controls the first selector on the basis of the first correlation
24 results; and
25 • a third selector for selecting the symbol of the received signal on the basis of
26 the first and second correlation results.

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Replacement claim 13

1 13. An apparatus according to claim 12, wherein the control-unit determines for
2 each first correlation result the value of a function of the correlation result, wherein
3 the function is determined by the type of modulation of the second sub-modulation
4 code, and subsequently controls the first selector on the basis of the maximum value
5 of the function in such a way that the corresponding first correlation result is selected
6 by the first selector and passed to the second correlator-bank.

Replacement claim 14

- 1 14. An apparatus according to claim 13, wherein the function is a function of the
2 real and/or imaginary parts of the first correlation result.

Replacement claim 15

- 1 15. An apparatus method according to claim 12, wherein the number of first
2 correlation results obtained by the first correlator-bank equals $C_1 * C_2 * \dots * C_i$
3 $* C_i * C_{i+1} * \dots * C_n$ wherein C_i is the number of elements of the i^{th} first set of the first sets.

Replacement claim 16

- 1 16. An apparatus according to claim 12, wherein the second correlator-bank
2 comprises means for phase-modulating the selected first correlation result with each
3 of said possible second sub-modulation codes for obtaining phase modulation
4 results and also comprises means for determining real values of the obtained phase-
5 modulated results for obtaining the second correlation results.

Replacement claim 17

- 1 17. An apparatus according to claim 12, wherein the number of second
2 correlation results equals the number of predetermined phase modulating elements
3 of the second set.

Replacement claim 18

- 1 18. An apparatus according to claim 12, wherein the third selector selects a
2 predetermined phase modulating element of the second set which provides the
3 selected second correlation result.

Replacement claim 19

- 1 19. An apparatus according to claim 12, wherein the third selector selects
2 predetermined phase modulating elements of the first sets which provides the
3 selected first correlation result.

Replacement claim 20

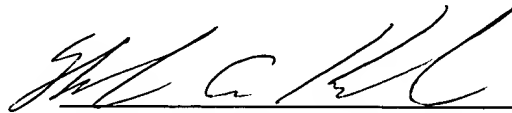
- 1 20. An apparatus according to claim 18, wherein the third selector combines the
2 selected predetermined phase modulating element of the second set and the

- Amended*
- 3 selected predetermined phase modulating elements of the first sets to obtain the
 - 4 symbol of the received signal.
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The Examiner is urged to call the undersigned attorney at the telephone number below if any issues remain after review of this Preliminary Amendment.

Respectfully submitted,

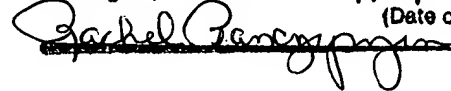
Date: 4/1/03



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